00001

5 MAY 1985

William R. Bronner
Group Counsel, NL Industries, Inc.
Office of General Counsel
1230 Avenue of the Americas
New York, NY 10020

RE: Agreement & Administrative Order by Consent
NL Industries, Inc.
Granite City, Illinois

Dear Mr. Bronner:

In accordance with Paragraph 34 of the above-cited order, this is to notify you that the period for public comment on the order terminated on April 10, 1985. In view of the fact that no public comments were received, the agencies have determined that a public meeting on this order is unneccesary. Therefore, after consulting with the Illinois Environmental Protection Agency (IEPA) I have been authorized to inform you that both the IEPA and the U.S. EPA have determined that this order shall become effective in its present form and on the date of your receipt of this notification.

For any questions relating to this matter, please contact Roger Grimes, Office of Regional Counsel, at (312) 886-6668.

Very truly yours,

Basil G. Constantelos
Director, Waste Management Division

cc: Daniel Riesel
Sive, Paget & Riesel, P. C.

Robert C. Sharpe
Senior Air Attorney

Greig Siedor
Assistant Attorney General

hcc: [redacted]
Waste Management Division

Robert Schaefer
David Ullrich
Mary Gade
Barbara Nagel

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

IN THE MATTER OF:	
NL Industries, Inc., A New Jersey Corporation.	U.S.EPA Docket No._____
PROCEEDING UNDER SECTION 106(a) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT, 42 U.S.C. §9606(a)	AGREEMENT AND ADMINISTRATIVE ORDER BY CONSENT

WHEREAS, the United States Environmental Protection Agency (hereinafter: "U.S. EPA"), the State of Illinois acting by and through its agency, the Illinois Environmental Protection Agency (hereinafter: "Illinois EPA") and NL Industries, Inc. (hereinafter: "NL Industries") have entered into certain discussions arising from the deposit of materials on or near a certain parcel of land previously owned by NL Industries and situated in Granite City, Illinois (hereinafter: the "site"), and

WHEREAS, Illinois EPA has made demand upon NL Industries for certain money that it contends it has expended with respect to the site, and U.S. EPA has made certain claims upon NL Industries, under either the Resource Conservation and Recovery Act ("RCRA") and/or the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), and NL Industries has denied any liability to the State of Illinois or any liability arising under RCRA or CERCLA, and further denies that

its actions or the actions of any party in interest with NL Industries has given rise to any liability on the part of NL Industries, and

WHEREAS, U.S. EPA, Illinois EPA (hereinafter collectively: "the Agencies") and NL Industries have reached agreement on procedures to resolve certain of these disputes which NL Industries hereby enters into without the admission of any liability whatsoever, and solely for the purpose of eliminating needless and costly administrative disputes except that Illinois EPA and NL Industries do not dispute the findings of fact set out in Section D, infra; it is

HEREBY STIPULATED AND AGREED by and among the attorneys for the respective parties hereto, and upon such stipulation and agreement, it is hereby Ordered:

A.

Jurisdiction

1. This Agreement and Administrative Order by Consent (hereinafter: "Consent Order") is issued pursuant to the authority vested by the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §9606(a), and delegated to the Administrator of the United States Environmental Protection Agency on October 9, 1981, by Executive Order 12316, who duly redelegated the authority to the Regional Administrator of Region V on April 1, 1983. This Consent Order is also entered into by the Illinois EPA pursuant to Ill. Rev. Stat., Ch. 111 1/2, Section 1004.

2. Illinois EPA's and NL Industries' obligations and liabilities with respect to, and arising from the site, shall be governed in accordance with the ensuing paragraphs.

B.

Parties Bound

3. This Consent Order shall apply to and be binding upon the following parties:

(i) NL Industries, its officers, employees, agents and contractors in their capacity as Corporation representatives, successors, assigns, and subsidiaries;

(ii) The U.S. EPA; and

(iii) The People of the State of Illinois by the Illinois EPA and the Office of the Attorney General.

C.

Notice To The State

4. The notice requirement of Section 106(a) of CERCLA has been satisfied.

D.

Findings Of Fact

5. The site is a triangular parcel of property situated at 16th Street and Cleveland Boulevard in Granite City, Illinois comprising of approximately 15.8 acres. The site contains a slag pile estimated to be 3 1/2 acres situated on the property of Taracorp, Inc. and the property of others. Situated at the site is a blast furnace, a refining area and a metal fabrication operations facility.

6. NL Industries owned and operated a secondary lead smelter on the site from approximately 1928, until August 1979.

7. From August 1979 until at least the effective date of this Consent Order Taracorp, Inc. has had title to the site and at least for one year during the aforesaid time period Taracorp operated a secondary lead smelter at the site.

8. During the period that NL Industries owned the site, it operated a secondary lead smelter which was primarily utilized in the smelting of lead bearing scrap or used batteries and to some extent telephone cable sheathing. NL Industries asserts that the secondary lead smelter operations were based on a tolling arrangement whereby entities, including C & D Batteries, 3043 Walton Road, Plymouth Meeting, Pennsylvania 19462; Del-Remy Division, General Motors Corp., P.O. Box 2439, Anderson, Indiana 46011; ESB, Inc., P.O. Box 8109, Philadelphia, Pennsylvania 19101; Globe Union, Inc., P.O. Box 591, Milwaukee, Wisconsin 53201; Gould, Inc., GNB Batteries, P.O. Box 43484, St. Paul, Minnesota 55164; General Battery, P.O. Box 1262, Reading Pennsylvania 19603; and Prestolite, P.O. Box 931, Toledo, Ohio 43601 would deliver used batteries to the site (C & D Batteries and Prestolite may be owned by Allied Corporation, P.O. Box 2332R, Morristown, New Jersey, 07960), an assertion with which U.S. EPA and Illinois EPA do not disagree. NL Industries contends that it would process these scrap materials owned by the above noted entities at its facility and thereafter return antimonial lead and lead oxide to the entities that delivered the used batteries and wire to the site, a contention with which

U.S. EPA and Illinois EPA do not disagree.

9. Waste blast furnace slag and other processed wastes were disposed of at the site by depositing the slag in the waste slag piles along the southeast border of the site.

10. The Regional Administrator of Region V, U.S. EPA, based on information available to him, has determined (a) that the site is a "facility" as defined in Section 101(9) of CERCLA; (b) NL Industries is a "person" as that term is defined in Section 101(21) of CERCLA; (c) "hazardous substances" as defined in Section 101(14) have been disposed of at the site and the threatened migration of such hazardous substances into the air above or the groundwater beneath the site, may constitute a "release or threat of release" as that term is defined in Section 101(22) of CERCLA; (d) NL Industries is a "responsible person" within the meaning of Section 107 of CERCLA; and (e) the threatened release may present an imminent and substantial endangerment to the public health or welfare or the environment within the meaning of Section 106(a) of CERCLA.

E.

Site Access

11. The site and nearby properties are not within the ownership or control of NL Industries. NL Industries will use its best efforts to obtain appropriate voluntary site access agreements from the present owners with express authority at least to drill and install monitoring wells and take samples of groundwater, surface water, soils and wastes as required, including authority necessary to provide access to U.S. EPA and

its authorized representatives pursuant to the terms of this Consent Order. NL Industries shall not be required to compensate the site owners for such agreement nor to commence any proceedings to obtain such access agreements. In the event that NL Industries obtains such agreements, evidence of those agreements shall be furnished to U.S. EPA within ten days of their receipt by NL Industries.

12(a). In the event that NL Industries is unable to obtain such access agreements within sixty days of the last party's signature to this Consent Order as provided at the foot of this document then EPA may exercise its authority, as it deems appropriate to secure access to effectuate the "RI/FS", described in Section "F", below and the effective date of this Consent Order shall be subject to obtaining such authority and adjusted to reflect the date that EPA informs NL Industries that such access has been obtained or the date that access has otherwise been obtained.

(b). In the event that NL Industries uses its best efforts to secure access, and U.S. EPA does not secure access, and access is not achieved otherwise, then those circumstances may constitute a force majeure event within the meaning of Section "P" of this Consent Order for that element of work.

F.

Remedial Investigation And Feasibility Study

13(a). In accordance with the statement of work previously negotiated, and as amended herein, (annexed hereto and

incorporated herein as Exhibit "A"), NL Industries shall perform a remedial investigation (RI) and a feasibility study (FS) with respect to the site.

(b). The FS shall contain NL Industries' conceptual proposal, with a schedule for implementations of remedial action to protect the public health, welfare and as defined by Section 101(8) of CERCLA, from the actual and threatened release of hazardous substances from the site.

14(a). NL Industries shall submit to U.S. EPA a Safety Plan, the Quality Assurance/Quality Control ("QA/QC") Plan as set forth on pages 12-13 of Exhibit "A" and a Work Plan within thirty (30) days of the effective date of this Consent Order. The QA/QC Plan will include the sampling plan associated with task 3(a) as set forth on page 6 of Exhibit "A". Offsite properties, where access will be required for sampling, will be identified in the sampling plan. The Work Plan requirement will be satisfied by submittal of a project proposal prepared by NL Industries' Consultant. Upon final agency action with respect to the Work Plan, the Work Plan shall become an integral and enforceable element of this Order, subject, however, to the provisions for dispute resolution set out below.

(b). The RI and the FS as described in Exhibit "A" are agreed to by the parties to this agreement. The following work shall be performed by NL Industries in accordance with the following schedule, which is depicted in Exhibit "B", "Anticipated Project Completion Schedule":

(1) Within one hundred seventy (170) days

of final agency action with respect to subparagraph "(a)" above, NL Industries shall complete the work associated with Tasks 1, 2, 3, 4 and 5, and submit the draft Remedial Investigation Report identified as Task 6, as set forth on page 11 of Exhibit "A". Within thirty (30) days after final agency action with respect to the draft Remedial Investigation Report, NL Industries will submit the final Remedial Investigation Report.

(2) NL Industries will not be required to submit to U.S. EPA the work plan as set forth on page 14 of Exhibit "A".

(3) NL Industries will not be required to submit to U.S. EPA the work required under Task 9, described at page 16 of Exhibit "A", as the information will be generated by the RI.

(4) Within fifteen (15) days after final agency action with respect to the work described in subparagraph (1) above, NL Industries shall present to U.S. EPA in a meeting, the established remedial response objectives and the identified Remedial Alternatives, as set forth as Task 10 at page 16 of Exhibit "A". This presentation

will be followed and confirmed by a letter report.

(5) Within seventy-five (75) days of final agency action of the work described in subparagraph (1) above, NL Industries shall present to U.S. EPA in a meeting, the Initial Screening of Alternatives, as described as Task 11 at pages 17-18 of Exhibit "A". This presentation will be followed and confirmed by a letter report.

(6) Within a time to be negotiated between the parties if it is required under the circumstances, NL Industries shall complete the Laboratory Studies Work, described as Task 12 at page 18 of Exhibit "A".

(7) Within two hundred (200) days of final agency action of the work described in subparagraph (1) above, NL Industries shall submit to U.S. EPA the draft preliminary FS Report, described as Task 13e on page 21 of Exhibit "A". The draft preliminary FS Report will include the work required under Tasks 10 through 13 of Exhibit "A". Within thirty (30) days after final agency action with respect to the draft preliminary FS Report, NL Industries will submit the final preliminary FS Report.

(8) Within forty-five (45) days of final agency action with respect to subparagraph (7) above, and upon the selection of a lawful and reasonable Remedial Alternative by U.S. EPA and Illinois EPA, NL Industries will submit to U.S. EPA the conceptual design provided for in Task 14 on page 21 of Exhibit "A", and the final report as described as Task 15 at page 21 of Exhibit "A".

(c). Within ten (10) days of the selection of the Remedial Alternative, if not sooner, NL Industries agrees to enter into negotiations with U.S. EPA and Illinois EPA for the implementation of the remedial clean-up determined by the RI/FS process.

(d). NL shall accomplish the work set forth in this section in accordance with applicable provisions of Title 40 C.F.R. §§ 300.68(e) through (j). All submittals by NL Industries under this Consent Order shall be in conformance with U.S. EPA Guidance for Remedial Investigations and Guidance for Feasibility Studies.

G.

Review Of Submittals And Resolution Of Disputes

15(a). U.S. EPA and Illinois EPA shall review all submittals and presentations made by NL Industries as required by Section F of this Consent Order within thirty (30) days of

receipt (unless either agency informs NL Industries that more time is needed), and U.S. EPA shall notify NL Industries by the thirtieth day, or the first working day thereafter, of the approval or disapproval of the submittal. In the event that the submittal is approved, it shall be considered an integral and enforceable part of the Consent Order. In the event the submittal is disapproved in whole or in part, the U.S. EPA shall notify NL Industries of the specific inadequacies in writing, and shall indicate the necessary amendments or revisions or need for further study and a schedule therefor. The writing containing such disapproval shall state, with specificity, (i) the extent that the work does not conform to Exhibit "A", or (ii) the extent that it does not comply with applicable regulations as set forth above.

(b). NL Industries may, at its own risk, proceed with the work pending final agency action.

16. Within thirty (30) calendar days of receipt of any notice of disapproval, or on the first working day thereafter, NL Industries shall submit revisions to correct the inadequacies and begin any further study required or NL Industries shall state in writing the reasons why the submittal, as originally transmitted, should be approved.

17. If, within thirty (30) calendar days from the date of NL Industries' submission of revisions pursuant to Paragraph 16 above, or on the first working day thereafter, the parties have not reconciled all issues in disagreement, U.S. EPA shall present to NL Industries such changes to the submittal as it

deems necessary. If NL Industries believes that the changes are inconsistent with this Consent Order, NL Industries shall notify the Agencies within fifteen (15) calendar days of receipt of such changes, or on the first working day thereafter. If NL Industries does not so notify the Agencies, NL Industries shall be deemed to have assented to the changes made by the Agencies and said changes shall become an integral and enforceable part of the Consent Order as specified in Paragraph 14, above.

18. If NL Industries notifies the Agencies of its objections to the changes, the parties shall have an additional fifteen (15) calendar days from receipt of NL Industries notification to reconcile their differences. Changes agreed to among the parties during this fifteen (15) calendar day period shall be reduced to writing and become an integral and enforceable part of this Consent Order.

19(a). Any issue not reconciled by agreement of all the parties to this Consent Order within the fifteen (15) calendar day period specified in Paragraph 18 above, shall be deemed resolved in favor of the agencies and shall be deemed to be "final agency action" subject to judicial review and NL Industries shall have the right to seek judicial review of any such final agency action in the appropriate District Court. Should NL Industries and the agencies not be able to informally resolve a dispute the parties may agree to extend time schedules or implementation of this Order, pending resolution of the dispute in an appropriate court.

(b). With respect to such final agency action, the agencies will endeavor to develop a unified position but may maintain differing positions to the extent that such positions are mandated by differing statutes or regulations. The foregoing notwithstanding, all controversies arising under this Administrative Order on Consent, including those specifically arising under this paragraph, are controversies arising under CERCLA, within the meaning of Section 113(b) of CERCLA.

H.

Remedies For Noncompliance

20. Nothing herein shall waive U.S. EPA's right to enforce this Consent Order under Section 106(b) of CERCLA.

21. Nothing herein shall waive U.S. EPA's right to take any action authorized by Sections 104, 106(a) and 107 of CERCLA or any other law; or, the Illinois EPA's right to take any action authorized by Illinois or any other law, should NL Industries fail to maintain compliance with this Consent Order or should NL Industries violate any state or federal law or regulation as a result of actions taken in compliance with this Consent Order.

I.

Creation Of Endangerment

22. In the event that the Regional Administrator of Region V, U.S. EPA or the Illinois EPA determines that activities implementing or in noncompliance with this Consent Order or any other circumstances or activities are creating an imminent and

substantial endangerment to the health and welfare of the people on the site or in the surrounding area or to the environment, the Regional Administrator of Region V, U.S. EPA or the Illinois EPA may order NL Industries to stop further implementation of this Consent Order for such period of time as needed to abate the endangerment or may petition a court of competent jurisdiction for such an order. U.S. EPA does not waive its right to order further abatement measures should an endangerment be created. During this period of time, NL Industries' obligations relating to the cause of the endangerment pursuant to this Consent Order shall be suspended and the time schedule for implementation shall be extended by the time period of the delay.

J.

Reporting

23(a). NL Industries shall submit written progress reports which describe the actions which have been taken toward achieving compliance with Paragraph 14(b)(1) of this Consent Order during the previous two months, as well as activities which are scheduled for the next two months to U.S. EPA, the Illinois EPA, and the Illinois Attorney General's Office by the tenth day of every second month following the final agency action with respect to subparagraph 14(a).

(b). Such progress reports and any other documents submitted pursuant to this Consent Order shall be sent by certified mail return receipt requested to the agency at the

following address (or to such other address as the agency may hereafter designate in writing):

Director, Waste Management Division
U.S. EPA, Region V
Attn:
230 S. Dearborn Street
Chicago, Illinois 60604

Director
Illinois Environmental Protection
Agency
Attn: Jim Frank
2200 Churchill Road
Springfield, Illinois 62706

and

Deputy Chief, Environmental
Control Division
Illinois Attorney General's Office
500 South Second Street
Springfield, Illinois, 62706

(c). U.S. EPA, Illinois EPA or Illinois Attorney General's Office may, in their discretion, direct that reports or plans or proposals made pursuant to the Consent Order be submitted at extended intervals or that no further reports need be submitted.

(d). Any notice or any writing to be sent or given by the agencies to NL Industries shall be sent by certified mail, return receipt requested to Mr. William Weddendorf, NL Industries, Inc., Wyckoffs Mill Road, Hightstown, New Jersey 08520, or to such other address as NL Industries may designate in writing.

(e). The foregoing notwithstanding, any submittals, notices or any other writing required by this Order where time

is of the essence, shall be sent by Express Mail or Courier Service.

K.

Sampling, Access And
Data/Document Availability

24(a). U.S. EPA, Illinois EPA and NL Industries shall make available to each other the results of sampling, tests or other data generated by any of them, or on their behalf, with respect to the implementation of this Consent Order.

(b). At the request of U.S. EPA or Illinois EPA, NL Industries shall allow split or duplicate samples to be taken by either or both agencies of samples collected by NL Industries during the implementation of the Consent Order. NL Industries shall notify the Project Coordinators for the U.S. EPA and Illinois EPA not less than ten (10) working days in advance of any sample collection for which the U.S. EPA or Illinois EPA Project Coordinators have indicated that they may wish to obtain split or duplicate samples.

(c). Subject to Paragraph 11 above, NL Industries shall assure that U.S. EPA, Illinois EPA or their respective authorized representatives shall have authority to enter all property at the site at all reasonable times for the purposes of, inter alia: inspecting records, operating logs and contracts related to NL Industries' implementation of this Consent Order at the site; reviewing the progress of NL Industries in carrying out the terms of this Consent Order; obtaining samples and

conducting such tests as U.S. EPA and Illinois EPA Project Coordinators deem necessary; and verifying the data submitted to U.S. EPA or Illinois EPA or NL Industries.

(d). The parties also agree that they shall preserve, during the pendency of this Consent Order and for a minimum of seven (7) years after its termination, all records and documents in their possession or in the possession of their divisions, employees, agents, accountants, contractors or attorneys which relate in any way to the site, despite any document retention policy to the contrary.

L.

Project Coordinators

25(a). NL Industries shall appoint and designate a Project Coordinator and an alternate for the purposes of overseeing the implementation of this Consent Order. NL Industries shall designate such Coordinator and inform the agencies in writing within ten (10) days of the effective date of this Consent Order. U.S. EPA and Illinois EPA shall each choose one Coordinator. NL Industries shall be informed within ten (10) working days of the name and address of the agency Coordinators. To the maximum extent possible, except as specifically provided in this Consent Order, communications among NL Industries, U.S. EPA and Illinois EPA concerning the terms and conditions of this Consent Order shall be made between the Coordinators. Each

Coordinator shall be responsible for assuring that all communications from the other parties are appropriately disseminated and processed within his respective organization.

(b). The Project Coordinators shall have the authority to: (1) take samples; (2) direct that work stop for a period not to exceed seventy-two (72) hours whenever a Project Coordinator determines that activities at the site may create a present danger to public health or welfare or the environment; (3) observe, take photographs and make such other reports on the progress of the work as the Coordinator deems appropriate; (4) review records, files and documents relevant to the Consent Order; and (5) in addition, the NL Industries' Coordinator shall have authority to make or authorize minor field modifications in the RI/FS or in techniques, procedures or designs utilized in carrying out this Order which are necessary to the completion of the project.

(c). The Project Coordinators or alternates shall be available or on reasonable call during all hours of work.

(d). The Agencies' Project Coordinators will have the same authority as is vested in any on-scene Coordinator under 40 C.F.R. §§ 300.54(b) and 300.71.

M.

Confidential Information

26. NL Industries may assert a business confidentiality claim covering part or all of any information requested by this Consent Order pursuant to 40 C.F.R. §2.203(b) or Illinois Law. However, analytical data shall not be claimed confidential by NL Industries. Information determined to be confidential by U.S.

EPA in accordance with 40 C.F.R. Part 2 or Illinois law will be afforded the protection specified therein. If no confidentiality claim accompanies the information when it is submitted to U.S. EPA, it may be made available to the public by the Agency without further notice to NL Industries.

N.

Other Claims

27. Nothing herein is intended to release discharge, or in any manner affect any claims, causes of action or demands in law or equity against any person, firm, partnership or corporation not a signatory to this Consent Order from any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release or disposal of any materials or hazardous substances, at, to or from the site. The parties to this Consent Order expressly reserve all rights (including any right to contribution possessed by NL Industries against any other parties who may be responsible for actual or threatened releases at the site), claims, demands and causes of action they have or may have against any and all other persons and entities who are not parties to this Consent Order.

28. NL Industries agrees to indemnify and save and hold harmless the U.S. EPA and Illinois EPA from any and all claims or causes of action arising from acts or omissions of NL Industries in carrying out the activities pursuant to this Consent Order.

29. The U.S. EPA or Illinois EPA shall not be held liable under or as a party to any contract entered into by NL Industries in carrying out the activities pursuant to this Consent Order.

O.

Other Applicable Laws

30. All actions required to be taken pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable local, State and Federal laws and regulations. In the event there is a conflict in the application of Federal or State laws or regulations, the more stringent of the conflicting provisions shall apply.

P.

Force Majeure

31(a). Any delay of performance which is caused by circumstances beyond the control of NL Industries shall not be a breach or violation of this Consent Order. The time for performance of any activity so delayed will be extended by a period of time not longer than that which can reasonably be attributed to the circumstances beyond the control of NL Industries. Increased costs or expenses associated with implementation of the activities called for in this document shall not of itself be considered a circumstance beyond the control of NL Industries. NL Industries shall notify the Regional Administrator in writing, with a copy to those persons identified in Paragraph 23(b) of this Order, as soon as possible but not later then ten (10) days after the date when NL

Industries knew or should have known of the occurrence of circumstances that may lead to a claim of force majeure, and not later than ten (10) days after the date of NL Industries' belief that such circumstances shall occur. Such written notification shall be accompanied by all available documentation, including but not limited to third party correspondence, and an affidavit from a responsible corporate official specifying each of the circumstances, NL Industries' rationale for interpreting such circumstances as beyond the control of NL Industries, the actions that NL Industries has taken and/or plans to take to perform the affected activity or activities or to perform them on time, and NL Industries' prediction as to the length of time that the circumstances that constitute the force majeure will delay the affected activity or activities.

(b). In the event that the agencies believe that a force majeure has been improperly claimed by NL Industries, they may institute an appropriate administrative or judicial proceeding wherein NL Industries shall have the burden of going forward in presenting a prima facia case of compliance with Paragraph 31(a), above.

Q.

Reimbursement Of Costs

32(a). Within thirty (30) days of the effective date of this Consent Order, NL Industries shall pay into the Hazardous Substances Response Trust Fund the sum of Five Thousand ($5,000) Dollars, as reimbursement of U.S. EPA's expenditures (payment to be forwarded to the U.S. EPA, Region V, Regional Hearing Clerk,

230 So. Dearborn, Chicago, Illinois 60604). Payment of this sum shall be in full and complete satisfaction of all past monetary claims of the U.S. EPA for expenditures made prior to the execution of this Consent Order pursuant to CERCLA or otherwise.

(b). No agreement has been reached between Illinois EPA and NL Industries with respect to the payment of any sum to the State of Illinois for past expenditures incurred pursuant to CERCLA. Illinois EPA and NL Industries will commence negotiations regarding this matter within thirty (30) days of receipt of the Illinois itemization of such expenses. Illinois EPA reserves the right to commence an action in an appropriate District Court of the United States, or if such Court declines jurisdiction, in an appropriate State Court, to obtain said payment, provided however, that no such action shall be commenced prior to ninety (90) days subsequent to the date that the last signature is affixed to the foot of this document.

(c). NL Industries shall not be required to reimburse either U.S. EPA or Illinois EPA for work performed during this Consent Order that is unreasonably duplicative.

(d). NL Industries shall also reimburse U.S. EPA and Illlinois EPA for reasonable costs associated with agency activities in connection with the Consent Order. Within thirty (30) days of the end of each calendar year, U.S. EPA and Illinois EPA will submit to NL Industries itemized statements for the previous year. Following receipt of the itemized statements, NL Industries shall pay, within sixty (60) days, into the (1) State of Illinois Hazardous Waste Fund the required

sum due Illinois EPA, and (2) into a fund to be designated by the U.S. EPA, the required sum due the U.S. EPA, unless NL Industries contends that the sums or either of them were not reasonably incurred in accordance with the law or actually incurred. In the event that NL Industries shall attempt to resolve said matter, through negotiation, and if the parties fail to agree within thirty (30) days, it shall commence an action in an appropriate District Court where it shall have the burden of proving that the sums are unreasonable or not in accordance with law.

R.

Termination and Satisfaction

33. The provisions of this Consent Order (with the exception of the document retention provision of Paragraph 25(d)) shall be deemed satisfied and this Consent Order with the exception of the covenants not to sue shall be of no further force or effect upon final agency action with respect to the work described in Paragraph 14(b)(8).

S.

Public Comment And Effective Date Of Consent Order

34. Within fifteen (15) days of the affixing of the last signature to this Consent Order, U.S. EPA shall announce the availability of this Consent Order to the public for review and comment. U.S. EPA shall accept comments from the public for a period of thirty (30) days after such announcement. If sufficient interest warrants, as determined by the agencies, a

public meeting will be held. At the end of the comment period, the agencies shall review all such comments and shall either:

(a) Determine that the Consent Order should be made effective in its present form, in which case NL Industries shall be so notified in writing. The Consent Order shall become effective on the date of such notification; or

(b) Determine that modification of the Consent Order is necessary, in which case NL Industries will be informed as to the nature of all required changes. If NL Industries agrees to the modifications, the Consent Order shall be so modified and shall become effective upon signature of the parties to the modified Consent Order.

In the event that NL Industries is unable to agree on modifications required by the agencies, as a result of public comment, this Consent Order will be deemed void and of no affect. In such event, U.S. EPA and Illinois EPA reserve all rights to take such actions as they deem necessary, and NL Industries reserves all rights to contest such actions.

T.

Covenant Not To Sue

35. To avoid adjudication between the parties hereto and the expense that would be incurred in connection with adjudication, and to set to rest the differences existing among them and based on information known to the parties when settling this matter, U.S. EPA and Illinois EPA have determined that full performance of the commitments made in this Consent Order constitutes full satisfaction of any and all civil claims which U.S. EPA or Illinois EPA may have against NL Industries with

respect to conducting an RI and FS pursuant to Section 104(b) of CERCLA and 40 C.F.R. §300.68(e) through (i) concerning the contamination at and from the site addressed in this Consent Order. Provided, however, that Illinois EPA reserves whatever rights it has to proceed against NL Industries in the event that negotiations fail to produce a settlement described in Paragraph 31(b), above. This Consent Order shall not be construed as releasing NL Industries from responsibility or liability under other provisions of CERCLA or any other Federal or State law.

By: _____ Feb 27, 1985
Sive, Paget & Riesel, P.C. Date
By Daniel Riesel
Attorneys for NL Industries Inc.

By: _____ 2-28-85
Illinois Environmental Date
Protection Agency

By: _____ 2-28-85
Office of the Illinois Date
Attorney General

By: _____ 3/11/85
Regional Administrator, Date
United States Environmental
Protection Agency, Region V

REMEDIAL INVESTIGATION
STATEMENT OF WORK

PURPOSE:

The purpose of this remedial investigation is to determine the nature and extent of the problem at the site and gather all necessary data to support the feasibility study. NL Industries, either alone or as a representative of resonsible parties, or an Engineer retained by them shall furnish all personnel, materials, and services necessary for or incidental to performing the remedial investigation of conditions resulting from lead smelting and related activities in the Granite City, Illinois area.

SCOPE:

The remedial investigation consists of eight tasks:

Task 1 — Description of Current Situation

Task 2 — Investigation Support

Task 3 -- Site Investigations

Task 4 -- Preliminary Remedial Technologies

Task 5 -- Site Investigations Analysis

Task 6 — Remedial Investigation Report

Task 7 -- Community Relations

Task 8 — Additional Requirements

A detailed work plan shall be submitted to USEPA and IEPA for approval. The plan shall also include technical approach, personnel qualifications, and a schedule for completing the proposed remedial investigation.

REMEDIAL INVESTIGATION
WORK PLAN SCHEDULE

	TASK	Product	Target Completion Week for Tasks (*) and Products (**)	Personnel Work Hours
1.	Description of Current Situation		*	
1a.	Site Background			
1b.	Nature and Extent of Problem			
1c.	History of Response Actions			
2.	Investigation Support		*	
2a.	Sub-Contractor Procurement	RFP (or IFB)	**	
2b.	Site Visit			
2c.	Define Boundary Conditions			
2d.	Site Map	Map	**	
2e.	Site Office			
3.	Site Investigations	Investigations	*, **	
3a.	Waste Characterization			
3b.	Hydrogeologic Investigation			
3c.	Soils and Sediments Investigation			
3d.	Surface Water Investigation			
3e.	Air Investigation			
4.	Preliminary Remedial Technologies		*	
4a.	Pre-Investigation Evaluation			
4b.	Post-Investigation Evaluation			

REMEDIAL INVESTIGATION
WORK PLAN SCHEDULE (Cont)

	TASK	Product	Target Completion Week for Tasks (*) and Products (**)	Personnel Work Hours
5.	Site Investigations Analysis		*	
5a.	Data Analysis			
5b.	Application to Preliminary Technologies			
6.	Remedial Investigation Report	Remedial Investigation Report	*, **	
7.	Community Relations		*	
8.	Additional Requirements	Safety Plan QA/QC Plan	*, **	

TASK 1 -- DESCRIPTION OF CURRENT SITUATION

The Engineer shall describe the background information pertinent to the site and its problems and outline the purpose and need for remedial investigation at the site. The data gathered during any previous investigations or inspections and other relevant data should be used. The site investigated shall include the Taracorp property, identified off-site removal sites, including alleys, parking lots and landfills and adjacent properties containing lead-contaminated piles.

a. Site Background. Prepare a summary of the regional location, pertinent area boundary features, and general site physiography, hydrology, and geology. The total area of the site and the general nature of the conditions, including pertinent history relative to the use of site for hazardous waste disposal, should be defined. The site investigated shall include the Taracorp property, identified off-site removal sites, including alleys and parking lots that are not impermeably paved, and landfills and adjacent properties containing lead-contaminated piles.

As a minimum, site background shall include the following for the plant site and affected areas:

1. Maps showing the following information with descriptions as necessary;
   a) The general geographical location;
   b) Taracorp plant property and property lines, waste and waste piles, raw material, and finished product storage areas;
   c) Industrial, commercial properties immediately adjacent to Taracorp property, including property lines of each property;
2. A reasonable history of all lead smelting and other processes at this plant site and at associated industries in the immediate plant area.
3. A general description of the current operations and associated lead processing industries at Taracorp and in the immediate area.

b. Nature and Extent of Problem. Prepare a summary of the information available on actual and potential on-site and off-site health and environmental effects. This may include, but is not limited to, identifying, and evaluating sources of lead emissions, discharges and contamination in the area, the type, physical states, and estimated amounts and locations of the hazardous substances, the existence and conditions of waste piles, storage areas, process and control equipment, drums, landfills, and lagoons affected media and pathways of exposure, contaminated releases such

as emissions and leachate or runoffs, and any human exposure. Emphasis should be placed on describing the threat or potential threat to public health, including threats to the public from inhalation of airborne particulates from the entire plant site and the waste storage piles and other open areas. Available previous sampling, blood testing and health studies should be used in this evaluation.

c. History of Response Actions. Prepare a summary of all previous response actions conducted by local, State, Federal or private parties, including site inspection, other technical reports, and their results. A list of reference documents and their location shall be included. The scope of the RI/FS should be developed to address the problems and questions that have resulted from the previous work at the site.

TASK 2 -- INVESTIGATION SUPPORT

The Engineer shall conduct preliminary work necessary to conduct the site investigations and feasibility study.

a. Subcontractor Procurement. Prepare subcontractor procurement documents and award sub-agreement to secure the services necessary to conduct the remedial investigation and feasibility study.

b. Site Visit. Conduct initial site visits required to become familiar with site topography, access routes, and proximity of receptors to possible contamination, and collect data for preparation of the site safety plan. The visit should be used to verify the site information developed in Task 1.

c. Define Boundary Conditions. Establish site boundary conditions to limit the area of site investigations. The boundary conditions should be set so that subsequent investigations will cover the contaminated media in sufficient detail to support following activities (e.g., the feasibility study). The boundary conditions should also be used to identify boundaries for site access control and site security.

d. Site Map. Initial map(s) and a grid system of the area within 1.0 mile of the waste pile will be developed. All wetlands, water features, drainage patterns, landfills, tanks, streets, commercial, industrial, residential and public property and other features will be depicted. The site map(s) and any topographic surveys will be of

sufficent detail and accuracy to locate and report all existing and future work performed at the area. [Permanent baseline monuments, bench marks and reference grids shall be tied into either USGS or State reference systems.] If remedial action is appropriate, the map(s) will be revised as necessary to include utilities, paved areas, easements and rights-of-way.

e. Site Office. An office will be identified to be used by the Engineer in support of site work.

TASK 3 -- SITE INVESTIGATIONS

The Engineer shall conduct only those site remedial investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The site investigations should also result in data of adequate technical content to assess preliminary remedial alternatives developed in Task 4 and support the detailed evaluation of alternatives during the feasibility study.

All sample analyses will be conducted at laboratories following EPA protocols, or equivalents. Strict chain-of-custody procedures will be followed and all samples will be located on the site map [and grid system] established under Task 2.

a. Waste Characterization. Develop and conduct a complete sampling and analysis program to characterize all materials of interest at the site. These materials could include wastes stored above or below ground in tanks, drums, lagoons, piles or other methods of storage. This must include a description of the methodology chosen for estimating the characteristics of the waste piles, including quantitites of lead and other hazardous materials, for each waste storage pile on the Taracorp property, on commercial and industrial properties adjacent to the Taracorp property and on other areas including roadways, open areas, and materials handling areas on both the Taracorp property and adjacent commercial and industrial areas. A sampling plan will be developed showing the locations, quantity, frequency, numbering, and constituents for analysis for each sample.

The sampling plan shall describe the sampling and analysis techniques appropriate to the site conditions. These techniques may include tank and drum opening, sample packing and shipping, and sample preservation. The number or frequency of sampling to obtain representative data should also be discussed. Elements of the safety plan and the QA/QC plan described in the "Additional Requirements" section will also apply to sampling.

The sampling plan should discuss potential incompatability of wastes. Wastes should be analyzed and grouped in compatability classes. This analysis should support any subsequent conclusions about segregating wastes on-site and developing preliminary remedial alternatives.

b. Hydrogeologic Investigation. Develop and conduct a program to determine the present and potential extent of ground water contamination and to evaluate the suitability of the site for on-site waste containment. Identify specific aquifer to be studied. Efforts should begin with a survey of previous hydrogeologic studies and other existing data. The survey should address the degree of hazard, the mobility of pollutants considered from Waste Characterization, the soils attenuation capacity and mechanisms, discharge/recharge areas, regional flow direction and quality, and effects of any pumping alternatives described in Task 4. It must also include analysis of the existing or potential contamination of groundwater from all sources of lead on the site, particularly the waste storage piles and all underground storage tanks. The present and future potential uses of the local groundwater resources must be investigated. Such information may be available from the USGS, the Soil Conservation Service, and local well drillers. Subsequent to the survey of existing data, a sampling program should be developed to determine the horizontal and vertical distribution of contaminants and predict the long-term disposition of contaminants. The sampling program should, at a minimum, evaluate factors affecting ground water quality, background levels of contamination, the type of well construction utilized (must be compatible with type of measurement taken), the number and location of wells, chain of custody and record of samples, and the ground water sampling method. Geophysical techniques should be considered for use in defining subsurface conditions and design of the sampling program.

c. Soils and Sediments Investigation. Develop and conduct a program to determine the location and extent of contamination of surface and subsurface soils and sediments. Specific areas to be studied will be identified. Threats to the public from ingestion of contaminated soils both on the plant site and in areas within one-half mile of the plant, and in all known off-site removal areas shall be evaluated. This initial survey will consist of samples taken on a 1000 foot grid interval. Parameters for additional sampling, within and without this one-half mile radius, will be developed.

Particular attention shall be given to schools, parks, alleys and residential areas where children may play and inadvertently ingest quantities of contaminated soil. This process may overlap with certain aspects of the hydrogeologic study (e.g., characteristics of soil strata are relevant to both the transport of contaminants by ground water and to the location of contaminants in the soil; cores from ground water-monitoring wells may serve as soil samples). A survey of existing data on soils and sediments may be useful. A sampling program should be developed and conducted to determine the horizontal and vertical extent of contaminated soils and sediments. Levels of soil contamination must be shown on appropriate maps. Information regarding local background levels, degree of hazard, location of samples, techniques utilized, and methods of analysis should be included. The investigation should identify the locations and probable quantities of subsurface wastes, such as buried drums, through the use of appropriate geophysical methods.

d. Surface Water Investigation. Develop and conduct a program to determine the extent of contamination of continuously flowing surface water within the study area. This process may overlap with the soils and sediments investigation; data from stream or lake sediments sampled may be relevant to surface water quality. A survey of existing data on surface water flow quantity and quality must be included. A sampling program must be developed and conducted, discussing the degree of hazard, including information on local background levels, location and frequency of samples, sampling techniques, and method of analysis. The amounts of lead which are deposited on streets and other areas (especially public areas) as the result of surface run-off from the waste pile shall be evaluated and determined. The potential reentrainment of this contamination into adjoining areas shall be determined.

e. Air Investigation. Develop and conduct a program to determine the extent of atmospheric lead contamination. Where appropriate, this must include a determination of the emissions rates of lead from each process source (for maximum allowed operating conditions) and from each fugitive source in the plant and in the area significantly impacted by the plant. The area significantly impacted by the plant will be specified by the IEPA, and will generally extend no more than two miles beyond the plant boundary. Determination of the geographical locations and stack parameters (i.e., stack heights, exit gas velocity, exit

gas temperature, and stack diameter) must be made for each process lead source within the significant impact area. For each fugitive source, geographical location as well as horizontal and vertical extent must be identified. The amount of lead which is deposited by process and other activities on streets and other areas accessible to the public must be determined.

Air quality analyses, including detailed dispersion modeling techniques must be conducted or, where available, analyzed using the source data collected above. The potential for buildings affecting the flow of the airborne lead emissions must be investigated. The ground level lead air concentration values must be projected in the vicinity of the lead sources using meteorological conditions and receptor locations as specified in applicable USEPA guideline documents. Current and historical air monitoring data in the area must be reviewed and evaluated to determine whether additional air monitoring sites are necessary. Based on all of the air quality analyses, the primary sources of lead must be identified and control techniques defined which will assure that future air quality levels are within acceptable limits (i.e., the National Ambient Air Quality Standards).

Where appropriate, the extensive analysis done by IEPA in support of the proposed State Implementation Plan (SIP) for lead may be used.

TASK 4 -- PRELIMINARY REMEDIAL TECHNOLOGIES

The Engineer will identify preliminary remedial technologies, providing detail sufficient to ensure that site investigations will develop a data base adequate for the evaluation of alternatives during the feasibility study.

a. Pre-Investigation Action. Prior to starting any site investigations, the Engineer will assess the anticipated site conditions to determine potential categories of source control and off-site remedial actions. This must include, as a minimum, analyses of the following:

1. Source Control Action

i. What containment techniques appear feasible to prevent contamination of ground water?

ii. Does incineration or reclamation appear to be a viable option?

iii. Does on-site treatment appear to be a viable option, and if so, what category of treatment should be investigated (e.g., biological, physical, chemical, thermal)? This must include an evaluation of washing technologies and techniques.

iv. Will substances migrate or continue to migrate off-site if no action is taken? If only source control measures are taken?

2. Off-Site Actions

i. Does the apparent volume of contaminated ground water, if any, make investigation or treatment impracticable?

ii. What technologies are available to treat the identified contaminants at the site?

iii. What technologies exist to effectively remove off-site contaminated materials?

iv. What technologies are available to control or contain the identified contaminants at the site?

v. Will the off-site contamination continue to pose a threat if no action is taken?

The IEPA will review and screen the preliminary technologies so that the site investigations can be designed to answer these types of questions and support the feasibility study.

b. Post-Investigation Evaluation. Either during or following the site investigations, the Engineer will assess the investigation results and recommend preliminary remedial technologies likely to apply to the site problem. These technologies should be a refinement of the options considered in Task 4a. They will provide the basis for developing detailed alternatives and the cost-effectiveness analysis during the feasibility study. The work during the remedial investigation will generally be limited to the following:

1. Recommending types of remedial technologies appropriate to the site conditions.

2. Recommending whether or not to remove some or all of the waste for treatment, storage, or disposal.

3. Determining the compatability of groups of wastes with other wastes and with materials considered as part of potential remedial action (e.g., slurry walls, lagoon liners). Recommending alternatives for treatment, storage, or disposal for each category of compatible waste.

TASK 5 -- SITE INVESTIGATIONS ANALYSIS

The Engineer shall prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data are sufficient in quality and quantity to support the feasibility study.

The results and data from all site investigations must be organized and presented logically so that the relationships between site investigations for each medium are apparent.

a. Data Analysis. Analyze all site investigations and develop a summary of the type and extent of contamination at the site. This analysis must include all significant pathways of contamination and an exposure assessment. Where practicable, the exposure assessment shall analyze the contribution of discrete sources of exposure to the overall assessment so as to provide an accountability analysis of the different sources. The exposure assessment should describe any threats to public health, welfare, or the environment. The analysis should discuss the degree to which either source control or off-site actions or combinations thereof, are required to significantly mitigate the threat to public health, welfare, or the environment. If the results of the investigation indicate that no threat or potential threat exists, a recommendation to stop the remedial response should be made.

b. Application to Preliminary Technologies. Analyze the results of the site investigations in relation to the preliminary remedial technologies developed in Task 4. Data supporting, or rejecting, types of remedial technologies, compatability of wastes and construction materials, and other conclusions should be presented.

TASK 6 -- REMEDIAL INVESTIGATION REPORT

The Engineer shall prepare a draft report covering the remedial investigation phase and submit 5 copies each to USEPA and IEPA. The report shall include the results of Task 1 through 5, and should include additional information in an appendix. The report shall be structured to enable the reader to cross-reference with ease. Comment from USEPA and IEPA shall be incorporated into the final report of which 5 copies each shall be submitted to USEPA and IEPA.

TASK 7 -- COMMUNITY RELATIONS SUPPORT

The Engineer may be required to furnish the personnel, services, materials and equipment required to assist in USEPA's or IEPA's community relations program. Although this may be a limited program, community relations must be integrated closely with all remedial response activities. The objectives of this effort are to achieve community understanding of the actions taken and to obtain community input and support prior to selection of the remedial alternative(s).

Community relations support shall consist of the following:

- Provide information for news releases, fact sheets and other materials prepared by USEPA or IEPA to apprise the community of current or proposed actions.

- Participation in public meetings, project review meetings, and other meetings as necessary to the normal progress of the work.

TASK 8 -- ADDITIONAL REQUIREMENTS

a. Reporting Requirements

Reports shall be prepared every other month by the Engineer and submitted to IEPA and USEPA that describe the technical progress of the project. These reports should discuss the following items:

1. Identification of site and activity.
2. Status of work at the site and progress to date.
3. Percentage of completion.
4. Difficulties encountered during the reporting period.
5. Actions being taken to rectify problems.
6. Activities planned for the next month.
7. Changes in key personnel.

The progress report will list target and actual completion dates for each element of activity including project completion and provide an explanation of any deviation from the milestones in the work plan schedule. Significant developments shall be reported as soon as practicable. All inquiries shall be directed through NL's designated project manager and shall be responded to.

b. Chain-of-Custody. Any field sampling collection and analyses conducted shall be documented in accordance with chain-of-custody procedures as provided by IEPA and USEPA.

c. Safety Plan. A safety plan will be developed to protect the health and safety of personnel involved in the remedial investigation. The plan will be consistent with:

- Section 111(c)(6) of CERCLA
- USEPA Order 1440.1 -- Respiratory Protection
- USEPA Order 1440.3 -- Health and Safety Requirements for Employees Engaged in Field Activities
- USEPA Occupational Health and Safety Manual
- Other USEPA guidance as provided
- State safety and health statutes
- Site conditions
- USEPA Interim Standard Operating Safety Guide

This safety plan shall be submitted to USEPA and IEPA.

d. Quality Assurance/Quality Control (QA/QC). The Engineer shall prepare and submit as part of the work plan a Quality Assurance Project Plan for the sampling, analysis, and data handling aspects of the remedial investigation. The plan shall be consistent with the requirements of EPA's Contract Laboratory Program. The plan shall address the following points:

1. QA Objectives for Measurement Data, in terms of precision, accuracy, completeness, representatives, and comparability.
2. Sampling Procedures.
3. Sample Custody.
4. Calibration Procedures, References, and Frequency.
5. Internal QC Checks and Frequency.
6. QA Performance Audits, System Audits, and Frequency.
7. QA Reports to Management.
8. Preventive Maintenance Procedures and Schedule.
9. Specific Procedures to be used to routinely assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters involved. This section will be required for all QA project plans.
10. Corrective Action.

The QA/QC plan must be approved by IEPA and USEPA prior to initiating any field activities.

FEASIBILITY STUDY
STATEMENT OF WORK

PURPOSE

The purpose of this remedial action feasibility study is to develop and evaluate remedial alternatives, and to identify the cost-effective remedial action to be taken with respect to conditions resulting from lead smelting and related activities in the Granite City, Illinois area. The Engineer shall furnish the necessary personnel, materials, and services required to prepare the remedial action feasibility study, except as otherwise specified herein.

SCOPE

The feasibility study consists of eight tasks:

Task 9 - Description of Proposed Response

Task 10 - Development of Alternatives

Task 11 - Initial Screening of Alternatives

Task 12 - Laboratory Studies

Task 13 - Evaluation of the Alternatives

Task 14 - Conceptual Design

Task 15 - Final Report

Task 16 - Additional Requirements

A work plan that includes a detailed technical approach, personnel qualifications and schedules shall be submitted to IEPA and USEPA for approval of the proposed feasibility study.

FEASIBILITY STUDY
WORK PLAN SCHEDULE

	TASK	Product	Target Completion Week for Tasks (*) and Products (**)	Personnel Work Hours
9	Description of Proposed Response		*	
10	Development of Alternatives	Preliminary Alternatives Submitted	*, **	
10-a	Response Objectives			
10-b	Identification of Remedial Alternatives			
11	Initial Screening of Alternatives		*	
12	Laboratory Studies [Optional]		*	
13	Evaluation of Alternatives		*	
13-a	Detailed Development of Remaining Alternatives			
13-b	Environmental Assessment	Environmental Information Document	**	
13-c	Cost Analysis			
13-d	Evaluation and Recommendation of Cost-Effective Alternative			
13-e	Report	Report	**	
14	Conceptual Design		*	
15	Final Report	Final Report	*, **	
16	Additional Requirements		*	

TASK 9--DESCRIPTION OF CURRENT SITUATION AND PROPOSED RESPONSE

A site-specific statement of the purpose for the response, based on the results of the remedial investigation will describe the discrete remedial technologies to be evaluated. This shall be submitted to IEPA and USEPA for approval and approved prior to commencement of Task 10.

TASK 10--DEVELOPMENT OF ALTERNATIVES

Based on the results of the remedial investigation and consideration of preliminary remedial technologies (Task 4), the Engineer shall develop a limited number of alternatives for source control or off-site remedial actions, or both.

a. Establishment of Remedial Response Objectives

Establish site-specific objectives for the response. These objectives shall be based on public health and environmental concerns, information gathered during the remedial investigation, Section 300.68 of the National Contingency Plan (NCP), EPA interim guidance, and the requirements of any other applicable Federal and State statutes. Preliminary cleanup objectives shall be developed in consultation with IEPA and USEPA.

b. Identification of Remedial Alternatives

Develop alternatives to incorporate remedial technologies (from Task 4b) response objectives, and other appropriate considerations into a comprehensive, site-specific approach. Alternatives should include non-cleanup (e.g., alternative water supply, relocation) and no-action options, if appropriate. The alternatives shall be developed in close consultation with IEPA and USEPA.

A range of contamination control alternatives shall be evaluated. These alternatives will be selected to reduce or control risks to the public which were identified and evaluated in the Phase I report. Alternatives must also reduce or prevent pollution to all environmental resources (air, land, surface and groundwater) from materials stored or handled on the Taracorp property or stored, deposited, or handled on adjacent property as a result of past lead processing activities at the smelting and fabricating plant and waste storage pile currently owned and operated by Taracorp.

The alternatives to being evaluated in Phase II must include, but are not limited to, the following, or combinations of the following control options:

1. Total removal of all lead waste and lead bearing waste materials and other hazardous waste materials from outside storage areas and underground tanks, i.e., removal to a hazardous waste site approved by IEPA and USEPA.

2. On-site reclaiming of salvageable lead and other materials, with interim control measures for storage piles during reclaiming and non-salvageable hazardous wastes removed to an approved off-site hazardous waste facility.

3. On-site reclaiming of salvageable lead and other materials with on-site burial of non-salvageable materials in properly constucted facilities approved by IEPA and USEPA.

4. On-site containment of the waste pile or part thereof, i.e., specially constructed groundwater barriers and suitable pile capping.

5. Removal and replacement of soils determined to contain excessive lead concentrations at the Taracorp plant site and on adjoining properties.

6. Removal and replacement of soils determined to contain excessive lead concentrations at residential, school, park and other public access areas.

7. Capping of lead-contaminated soils with clean soil, or other appropriate capping materials such as paving.

8. Planting of grass or other vegetative cover on lead-contaminated soil to minimize contact risk or airborne fugitive transport.

TASK 11—INITIAL SCREENING OF ALTERNATIVES

The alternatives developed in previsous Tasks will be screened by the Engineer to eliminate alternatives that are clearly not feasible or appropriate. A report setting forth the results of this initial screening shall be sent to USEPA and IEPA for their approval prior to undertaking the detailed evaluations of the remaining alternatives called for in Task 13. The parties shall endeavor, prior to the commencement of Task 13, to identify for Task 13 evaluation the most promising alternatives, so as to reduce unnecessary evaluations.

Considerations to be Used in Initial Screening

Three broad considerations must be used as a basis for the initial screening: cost, effects of the alternative, and acceptable engineering practices. More specifically, the following factors must be considered:

1) Cost. An alternative whose cost far exceeds that of other alternatives will usually be eliminated. Total cost will include the cost of implementing the alternative and the cost of operation and maintenance.

2) Environmental effects. Alternatives posing significant adverse environmental effects will be excluded.

3) Environmental protection. Only those alternatives that satisfy the response objectives and contribute substantially to the protection of public health, welfare, or the environment shall be considered further. Source control alternatives shall achieve adequate control of source materials. Off-site alternatives shall minimize or mitigate the threat of harm to public health, welfare, or the environment.

4) Implementability and reliability. Alternatives that may prove extremely difficult to implement, will not achieve the remedial objectives in a reasonable time period, or rely on unproven technology will be eliminated.

TASK 12--LABORATORY STUDIES [If Required]

The Engineer shall conduct any necessary laboratory and bench scale treatability studies required to evaluate the effectiveness of remedial technologies and establish engineering criteria (e.g., leachate treatment; ground water treatment; compatability of waste/leachate with site barrier walls, cover, and other materials proposed for use in the remedy). It is expected that the scope of this task will depend on the results of Tasks 10 and 11 and therefore will not be complete at the start of Task 13. The Engineer will submit a separate work plan for any proposed laboratory studies for State approval. This submittal will be made in the timeframe required to maintain steady progress of the overall feasibility study. [Additional studies may also be conducted during the design phase of needed to refine treatability results or develop detailed design criteria.]

TASK 13--EVALUATION OF THE ALTERNATIVES

The Engineer shall evaluate the alternative remedies that pass through the initial screening in Task 11 and recommend the most desireable (cost effective) alternative to USEPA and the State.

Alternative evaluation shall be preceded by a detailed development of the remaining alternatives.

a. Detailed Development of Remaining Alternatives

The detailed development of the remaining feasible remedial alternatives shall include as a minimum;

1) Description of appropriate treatment and disposal technologies.

2) Special engineering considerations required to implement the alternative (e.g., pilot treatment facility, additional studies needed to proceed with final remedial design).

3) Environmental impacts and proposed methods, and costs, for mitigating any adverse effects.

4) Operation, maintenance, and monitoring requirements of the remedy.

5) Off-site disposal needs and transportation plans.

6) Temporary storage requirements.

7) Safety requirements for remedial implementation (including both on-site and off-site health and safety considerations).

8) A description of how the alternative could be phased into individual operable units. The description should include a discussion of how various operable units of the total remedy could be implemented individually or in groups, resulting in a significant improvement to the environment or savings in costs.

9) A review of any off-site disposal facilities to ensure compliance with applicable RCRA requirements.

b. Environmental Assessment

Perform an Environmental Assessment (EA) for each alternative. The EA shall include, at a minimum, an evaluation of each alternative's environmental effects, an analysis of measures to mitigate adverse effects, physical or legal constraints, and compliance with CERCLA or other regulatory requirements.

Each alternative will be assessed in terms of the extent to which it will mitigate damage to, or protect, public health, welfare, and the environment, in comparison to the other remedial alternatives. The specific considerations to be used in the assessment will be different for source control alternatives and for off-site alternatives, as explained in EPA guidance. Consideration may be given to standards and criteria developed under Federal or State environmental and health statutes.

c. Cost Analysis

Evaluate the cost of each feasible remedial action alternative (and for each phase or segment of the alternative). The cost will be presented as a present worth cost and will include the total cost of implementing the alternative and the annual operating and maintenance cost. A distribution of costs over time will be provided.

d. Evaluation and Recommendation of Cost-Effective Alternative

Alternatives shall be evaluated using technical, environmental, and economic criteria. At a minimum, the following areas will be used to evaluate alternatives:

1. Reliability. Alternatives that minimize or eliminate the potential for release of wastes into the environment will be considered more reliable than other alternatives.

2. Implementability. The requirements of implementing the alternatives will be considered, including phasing alternatives into operable units and segmenting alternatives into project areas on the site. The requirements for permits, zoning restrictions, right of ways and public acceptance are also examples of factors to be considered.

3. Operation and Maintenance Requirements. Preference will be given to projects with lower O&M requirements, other factors being equal.

4. Environmental Effects. Alternatives posing the least impact (or greatest improvement) on the environment will be favored.

5. Safety Requirements. On-site and off-site safety requirements during implementation of the alternatives should be considered. Alternatives with lower safety impact and cost will be favored.

6. Cost. The remedial alternative with the lowerst total present worth cost will be favored. Total present worth cost will include capital cost of implementing the alternative and cost of operations and maintenance of the proposed alternative.

Recommend the alternative determined to be the most cost-effective. The recommendation will be justified by stating the relative advantages over other alternatives considered. Evaluative considerations shall be applied uniformly to each alternative. The lowest cost alternative that is technologically feasible and reliable and that adequately protects (or mitigates damage to) public health, welfare, or the environment will be considered the cost-effective alternative.

e. Report

Prepare a report presenting the results of Tasks 9 through 13 and the recommended remedial alternative. Submit 5 copies each of the preliminary report to IEPA and USEPA for their review and comment. Following any changes made in this report by this review and comment, the report (as modified) will be presented by USEPA and IEPA for public hearing and comment. Following public hearing and comment, USEPA and IEPA will select a remedial alternative.

TASK 14--CONCEPTUAL DESIGN

Prepare a conceptual design of the remedial alternative selected by IEPA and USEPA. The conceptual design shall include, but is not limited to, the engineering approach including implementation schedule, special implementation requirements, institutional requirements, phasing and segmenting considerations, preliminary design criteria, preliminary site and facility layouts, budget cost estimate (including operation and maintenance costs), operating and maintenance requirements and duration, and an outline of the safety plan including cost impact on implementation. Any additional information required as the basis for the completion of the final remedial design will also be included. The Engineer may also be required to revise portions of the community relations plan to reflect the results of the conceptual design.

TASK 15--FINAL REPORT

Prepare a final report for submission to the State. The report shall include the results of Tasks 9 through 14, and should include any supplemental information in an appendix. Submit 5 copies each to IEPA and to USEPA.

The final report generated under Phase II will recommend the alternatives to be implemented for plant site and off-site clean up of contaminated areas. The report must contain a clear schedule for implementing and completing all phases of site clean-up actions and any necessary construction work. The report must be submitted to IEPA and USEPA for review. Alternatives to be implemented must be approved by IEPA and USEPA before any work is implemented.

TASK 16--ADDITIONAL REQUIREMENTS

Reporting requirements are described in Task 8 of the remedial investigation scope of work.

RC:jd/01600/sp/1-22

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

ect _____

_____

owed by _____ Date _____

ITEM		COMPLETION DATE (# DAYS FOLLOWING EFFECT. DATE)	Net Time
SUBMITTAL OF WORK PLAN, QUALITY ASSURANCE / QUALITY CONTROL (INCLUDING SAMPLING PROGRAM) SAFETY PLAN	①	30	
AGENCY REVIEW COMPLETED	②	60	30
SUBMITTAL OF DRAFT RI REPORT	③	230	170
AGENCY REVIEW COMPLETED	④	260	30
SUBMITTAL OF IDENTIFIED REMEDIAL ALTERNATIVES	⑤	~~290~~ 275	15
~~AGENCY REVIEW COMPLETED~~	⑥	~~320~~	~~30~~
SUBMITTAL OF SCREENING OF ALTERNATIVES	⑦	~~310~~ 325	50
~~AGENCY REVIEW COMPLETED~~	⑧	~~440~~	~~120~~
SUBMITTAL OF draft preliminary FS REPORT	⑨	460	135
AGENCY REVIEW COMPLETED	⑩	490	30
SUBMITTAL OF final preliminary ~~FINAL~~ FS REPORT	⑪	520	30

) 45 days after selection of a remedial alternative

NL

CERTIFIED MAIL - RRR

June 17, 1985

Director, Waste Management Division
U.S. Environmental Protection Agency
Region V
Attn: Neil Meldgin (5-HW)
230 S. Dearborn Street
Chicago, Illinois 60604

Director
Illinois Environmental Protection Agency
Attn: John Hooker
2200 Churchill Road
Springfield, Illinois 62706

Deputy Chief, Environmental Control Division
Illinois Attorney General's Office
500 South Second Street
Springfield, Illinois 62706

Subject: Agreement and Administrative Order by Consent
Former NL Industries' Granite City, Illinois Facility

Gentlemen:

Pursuant to Mr. Cowles' request during our meeting of May 23, 1985, we are enclosing a Project Schedule and Chart.

If you have any questions regarding this matter, please telephone me at 609-443-2499.

Very truly yours,

W. K. Weddendorf

William K. Weddendorf
Principal Environmental Engineer

WKW/dcb
enclosure

cc: F. R. Baser
F. D. Hale - OBG

NL Industries, Inc.
Environmental Control Department
P.O. Box 1090, Hightstown, N.J. 08520 Tel. (609) 443- 2499

GRANITE CITY, ILLINOIS ADMINISTRATIVE ORDER OF CONSENT
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

PROJECT SCHEDULE
Effective Date of Order May 14, 1985

Page	Paragraph	Task	Item	Due Date
17	25(a)	—	Notification of Coordinator	5/24/85
7	14(a)	—	Submit Safety Plan, QA/QC Plan and Work Plan	6/13/85
21	32(a)	—	Reimburse USEPA ($5,000)	6/13/85
22	32(b)	—	Negotiate reimbursement with IEPA (30 days from receipt of itemized expenses)	—
6	11	—	Furnish evidence of access agreements (10 days from receipt)	—
10	15(a)	—	Agency Final Action on Safety Plan, QA/QC Plan & Work Plan	7/15/85
7	$14(b)_1$	1-5	Complete Task 1,2,3,4 & 5	12/30/85
7	$14(b)_1$	6 & 9	Submit draft R.I. Report	12/30/85
10	15(a)	—	Agency Final Action on draft R.I. Report	1/29/86
8	$14(b)_1$	6 & 9	Submit Final R.I. Report	2/28/86
22	32(d)	—	Agencies submittal of invoices	1/30/86
22	32(d)	—	Reimburse Agencies expenses	4/1/86
10	15(a)	—	Agency Final Action on R.I. Report	3/31/86
8	$14(b)_4$	10	Present Remedial Response objectives & identified Remedial Alternatives	4/14/86
9	$14(b)_5$	11	Present Initial Screening of Alternatives	6/13/86

Page	Paragraph	Task	Item	Due Date
9	$14(b)_6$	12	Complete Laboratory Studies	(if required)
9	$14(b)_7$	10–13	Submit draft preliminary F.S. Report	10/16/86
10	15(a)	——	Agency Final Action on draft preliinary F.S. Report	11/17/86
9	$14(b)_7$	10–13	Submit Final preliminary F.S. Report	12/15/86
10	15(a)	——	Agency Final Action on Final Preliminary F.S. Report	1/14/87
22	2(d)	——	Agencies Submittal of Invoices	1/30/87
10	$14(b)_8$	14–15	Submit conceptual design and Final Report	3/2/87
22	32(d)	----	Reimburse Agencies Expenses	4/1/87
*12	——	7	Assist Agencies Community Relations Program	(as required)
*12 & 22	——	8 & 16	Complete additional Requirements (Reporting, Chain of Custody, Safety, QA/QC)	(as required)

TASKS 1–8 Remedial Investigation
TASKS 9–16 Feasibility Study
*EXHIBIT "A"

PROJECT SCHEDULE

PROJECT: Grasse Corp, Illinois RI/FS per AOC of 5/14/85 PREPARED BY: W.K.W. & S.W.H. DATE: 4/30/86